Working Document No. 6 to the
Arctic Fisheries Working Group
18 – 27 April 2007

OBSERVER PROGRAM FOR JUVENILE

NORTHEAST ARCTIC SAITHE

Status report

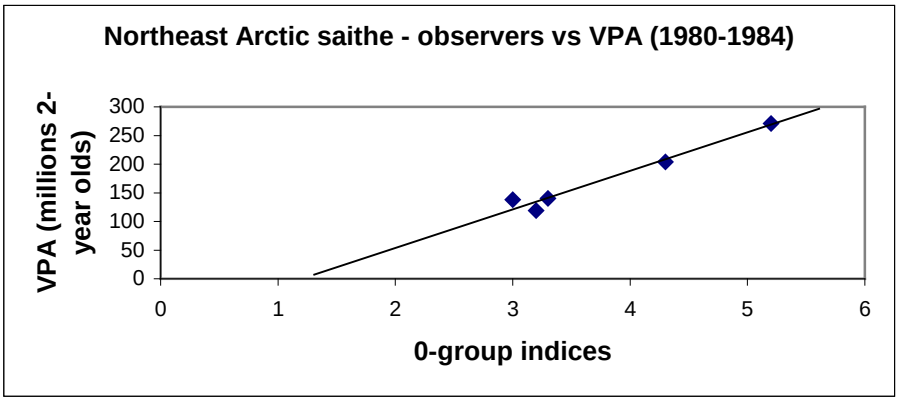
By

Sigbjørn Mehl
Institute of Marine Research
Bergen, Norway

The observer program

One of the main problems in the stock projections for Northeast Arctic saithe is the lack of information on the strength of recruiting year classes before they enter the fishery or become fully available for standard scientific surveys. The problem is international and arises because saithe lives in shallow coastal waters the first years. In the 1980s an observer program with saithe fishermen living at places were it was easy to observe juvenile saithe along the shore was tried. But the volunteer observers little by little stopped to send information and the program was ended.

Later, however, the VPA-analysis showed that the observations had a quite good fit to the year class strength 2-3 years later when the fish recruited to the fishery:



The Institute of Marine Research (IMR) in Bergen therefore decided to restart the observe program and contacted the Norwegian Fishermen's Association and the Directorate of Fisheries' regional offices to get in contact with potential observers. The tasks of the observers are:

- Make monthly observations and report to IMR
- The juvenile saithe should be classified on a scale from 0 to 10

Record strong	10
Very strong	9
Strong	8
Clearly above average	7
Somewhat above average	6
Average	5
Somewhat below average	4
Clearly below average	3
Weak	2
Very weak	1
Practically no 0-goup	0

- If possible, make length measurements of the juveniles

The program started summer 2000 with 25 observers distributed along the Norwegian coast from 62° N to the Varanger fjord. At the moment about 17 of the observers are still active. The tasks have been extended to, if possible, split the 0-, 1- and 2-group and make separate classifications and length measurements.

Preliminary results

The program has now been running for seven 0-group seasons and some preliminary results for 2000-2005 are available. The text table below shows the indexes by observation area and year.

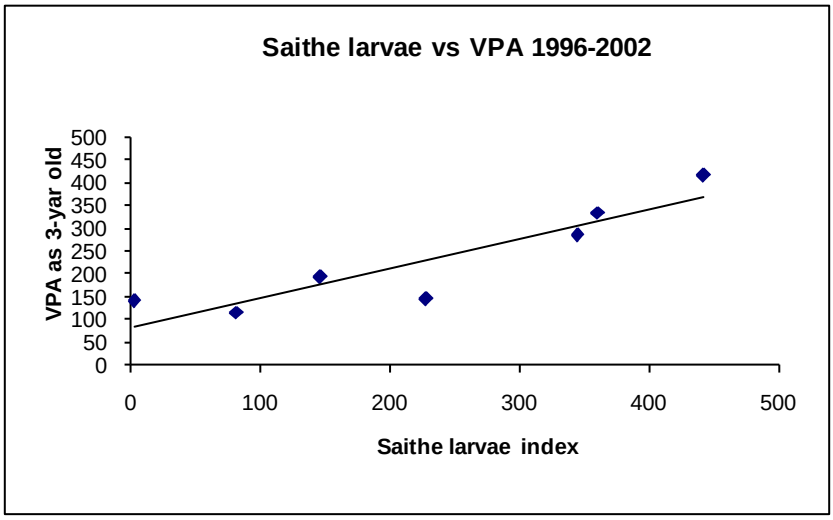
Observation area	2000	2001	2002	2003	2004	2005
AVERØY	8,0	3,3	8,0	8,0	5,0	4,0
BERGSFJORD HAVN	3,8	4,0	5,0	4,8	1,5	4,0
BJUGN	4,0	4,0	3,7	2,7	3,9	5,2
BODØ - SALTEN	9,0	8,5	8,0	8,6	8,5	8,4
BØ I VESTERÅLEN	4,5	3,0	3,5		4,0	6,5
BÅTSFJORD	5,6	5,6				
FLATØY-LANDEGO	8,8		9,0	9,0	8,0	3,0
FORSØL - HAMMERFEST		7,0	8,0		10,0	
FROAN	9,6	8,5	8,0	7,8	7,0	7,3
GRØTAVÆR	2,5	5,0				
KVALSUND - REPPARFJORD		8,7				
LOFOTENS INNERSIDE - YTTERSIDE	5,3	5,0	8,4	7,3	6,7	5,9
MÅNESET, NÆRØY KOMMUNE	3,5	2,7	6,4	6,3	5,0	4,8
MÅSØY SOGN			8,0	6,9	6,7	7,7
NESSEBY, VARANGERFJORD	6,0					
ROMSDAL, HARØYSUND - BJØRNSUND	4,6	7,0	5,0	5,6	4,9	5,3
SMØLA	5,0	5,7				
SOMMARØY	5,5	4,3	5,6	5,2	4,4	4,3
STØTT	6,3	4,0	6,3	4,5	3,3	3,7
SUNNMØRE	3,5	5,7	6,0	1,0		
SØRØYA	7,2	4,5	5,7	6,5	6,5	
TANAFJORD	7,0		9,0	4,0		
VARANGERFJORD - INDRE	5,0					7,0
VEGA	4,6	4,0				

The next table presents mean observed year-class strength at age and saithe larvae indices from the herring post larvae survey in 2000-2005.

	Mean observer indices			Larvae indices
YEAR	**0**	**1**	**2**	
2000	5,7			81
2001	5,4	6,0	6,0	228
2002	6,5	5,6	5,9	442
2003	6,0	6,3	6,4	1165
2004	5,4	5,9	6,4	2135
2005	5,7	5,8	6,1	1188

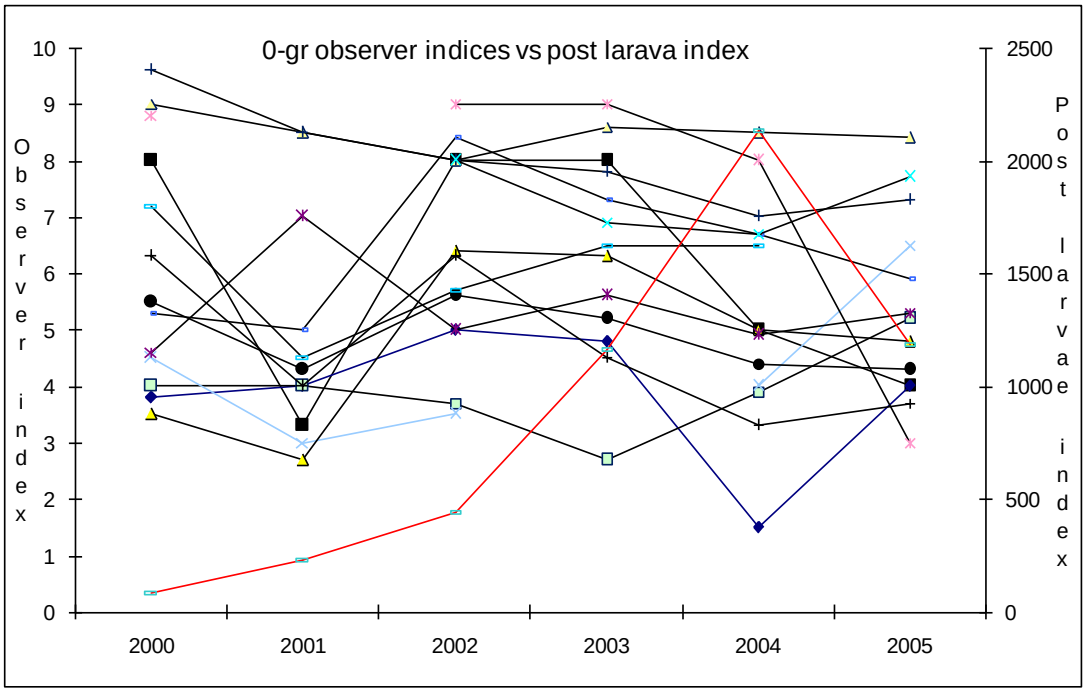
The 2000 – 2005 year-class indexes so far seem to be a little above average strength. The saithe post larvae index estimated during the NSS herring post larvae survey was poor in 2000, weak in 2001 and below average in 2002. In later years the index from this survey has been strong. The survey is designed to cover NSS herring post larvae,

but the plot below shows relatively good accordance between the sithe larvae indices and XSA-estimate as 3-year olds.



In IMR's acoustic survey the 2000 – 2001 year-classes are below average strength, the 2002 year class well above average strength while the younger year-classes so far not are covered very well by the survey. In the ICES stock assessment the 2000 year-class is weak and the 2001 year-class is below average, while the 2002 year-class is strong.

The mean observed year-class strength does not seem to reflect the variation in year-class strength to the same extent as the survey and stock assessment do. There seem to be some more variation in each single observation area, but the plot below shows poor accordance between all observer areas and the post larvae index.



At the moment there is also only three years with 0-group indices and corresponding XSA-estimates of year class strength at age 3 (2000-2002). It is therefore recommended that the program is run for another two years, and that an evaluation is done in connection with the next NEA saithe benchmark assessment.